

**AMENDMENTS TO THE CLAIMS WITH MARKINGS TO SHOW CHANGES  
MADE, AND LISTING OF ALL CLAIMS WITH PROPER IDENTIFIERS**

1-7. (Cancelled)

8. (Currently amended) The DNA expression construct according to claim 24 ~~22, wherein the immunizing polypeptide sequences are in the form of expression constructs, said constructs consisting of~~ construct comprising covalently closed linear deoxyribonucleotide molecules comprising a linear double stranded region, wherein ends of the double stranded region are linked to short single stranded loops consisting of deoxyribonucleotides, said double strand forming single strands consisting only of encoding sequences under the control of a the promoter and a the terminator sequence operable in an animal to be vaccinated.

9. (Currently amended) The DNA expression construct according to claim 24 ~~22, wherein the expression construct is covalently linked to one or more peptides.~~

10. (Previously presented) The DNA expression construct according to claim 9, wherein the peptide is composed of 30 amino acids, at least half of which are a member of the group consisting of arginine and lysine.

11. (Currently amended) The DNA expression construct according to claim 40 ~~9, wherein the one peptide comprises~~ SEQ ID NO 41 ~~the sequence PKKKRKV.~~

12. (Currently amended) A pharmaceutical composition, especially a vaccine, for the production of at least one of a preventive and therapeutic immunity in Felidae, especially the cat, comprising a DNA expression construct according to claim 24 ~~22~~, and a pharmaceutically effective carrier.

13. (Withdrawn) Protein with the amino acid sequence Seq. ID 6, which is a protein highly homologous to the original structural protein ("gag") of the feline leucosis virus (FeLV).
14. (Canceled)
15. (Withdrawn) Protein with one of: the amino acid sequence Seq.ID9, which is a protein highly homologous to the original membrane protein gp85 ("env") of the feline leucosis virus (FeLV); or  
the amino acid sequence Seq.ID10, which is a protein highly homologous to the original membrane protein gp70 ("env") of the feline leucosis virus (FeLV).
16. (Withdrawn) Monoclonal antibody against a protein according to claim 13.
17. (Withdrawn) Polyclonal antibody against a protein according to claim 13.
18. (Withdrawn) Kit for the diagnosis of infections in cats with the Feline Leucosis virus, comprising one or more antibodies according to claim 16.
19. (Withdrawn) Monoclonal antibody against a protein according to claim 15.
20. (Withdrawn) Polyclonal antibody against a protein according to claim 15.
21. (Cancelled)
22. (New) A DNA expression construct for the expression of proteins in the Feline Leucosis virus in cat cells comprising:  
a promoter sequence operable in Felidae and at least one Feline Leucosis virus nucleotide sequence which is mutated as compared to a wildtype Feline Leucosis virus nucleotide sequence, wherein said mutated nucleotide sequence

encodes at least one of a structure protein "gag" and a membrane protein "env", which comprises codons optimized for gene expression in Felidae and contains no splice donor or acceptor sequences, wherein said mutated nucleotide sequence encodes a protein and as set forth in at least one of: SEQ ID NO 5, SEQ ID NO 7 or SEQ ID NO 8, and a termination sequence.

23. (New) An isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown in SEQ ID NO: 5.

24. (New) The isolated nucleic acid molecule according to claim 23, wherein the nucleic acid sequence encodes a "gag" related structural protein.

25. (New) An isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown in SEQ ID NO: 7.

26. (New) The isolated nucleic acid molecule according to claim 25, wherein the nucleic acid sequence encodes an "env-gp85" related membrane protein.

27. (New) An isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown in SEQ ID NO: 8.

28. (New) The isolated nucleic acid molecule according to claim 26, wherein the nucleic acid sequence encodes a "env-gp70" related membrane protein.

29. (New) The DNA expression construct of claim 22 comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown in SEQ ID NO: 5.

30. (New) A DNA expression construct comprising: an isolated nucleic acid molecule or the complement thereof, wherein the isolated nucleic acid molecule

comprises the sequence shown in SEQ ID NO: 5; wherein the expression of the construct in cat cells provides protection from Feline Leucosis virus infection.

31. (New) The DNA expression construct of claim 22, comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown in SEQ ID NO: 7.

32. (New) A DNA expression construct comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown in SEQ ID NO: 7; wherein the expression of the construct in cat cells provides protection from Feline Leucosis virus infection.

33. (New) The DNA expression construct of claim 22, comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown in SEQ ID NO: 8.

34. (New) A DNA expression construct comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown in SEQ ID NO: 8; wherein the expression of the construct in cat cells provides protection from Feline Leucosis virus infection.

35. (New) The DNA expression construct according to claim 29 further comprising a covalently closed linear deoxyribonucleotide molecule comprising a linear double stranded region, a short single stranded loop consisting of deoxyribonucleotides, a promoter that is operable in animal that is to be vaccinated, and a terminator sequence.

36. (New) The isolated nucleic acid of claim 23, wherein the 'gag' coding sequence is amplified by primers which selectively hybridize to the same sequence of SEQ ID No. 5.

38. (New) The isolated nucleic acid of claim 25, wherein the 'env-gp85" coding sequence is amplified by primers which selectively hybridize to the same sequence of SEQ ID No. 7.

39. (New) The isolated nucleic acid of claim 27, wherein the 'env-gp70" coding sequence is amplified by primers which selectively hybridize to the same sequence of SEQ ID No. 8.